



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.              | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------------------|------------------|
| 10/031,231   | 01/17/2002  | Terence Widdowson    | 36-1535                          | 8193             |
| 7590 04/19/2005  |             |                      |                                  |                  |
| Nixon & Vanderhye<br>1100 North Glebe Road 8th Floor<br>Arlington, VA 22201-4714 |             |                      | EXAMINER<br>GHULAMALI, QUTBUDDIN |                  |
|  |             |                      | ART UNIT<br>2637                 | PAPER NUMBER     |

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/031,231

Applicant(s)

WIDDOWSON ET AL.

Examiner

Qutub Ghulamali

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13 is/are rejected.
- 7) ☒ Claim(s) 3 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/6/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because the disclosure at the end refers to "Figure 3a". The reference to "Figure 3a" must be removed. Correction is required. See MPEP § 608.01(b).
2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Art Unit: 2637

- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The specification in the instant application lacks the required headings for each section.

Therefore, appropriate corrections to the specification per the guidelines highlighted above, is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 3 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With reference to claim 3, claim 3 recites the limitation "the equation" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As per claim 11, claim 11 recites the limitation "the complex spreading signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 5-11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Stevenson (US Patent 4,726,069).

Regarding claims 1 and 13, Stevenson discloses, a method of generating a single sideband spread spectrum signal comprising: phase-shifting a complex spreading signal in accordance with a Hilbert transform to produce a phase-shifted complex spreading signal (abstract; col. 10, lines 4-15);  
upconverting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency (carrier frequency) to produce the single sideband spread spectrum signal (col. 8, lines 46-61);  
bandlimiting one of at least the complex sideband spread spectrum signal (col. 4, lines 5-15); and  
modulating one of the complex spreading signal or the single sideband spread spectrum signal with a received signal (abstract; col. 4, lines 5-15).

As per claim 2, Stevenson discloses modulating a signal of the upconverted complex signal in accordance with the real part of the complex signal combined with the Imaginary part of the phase shifted complex signal (col. 5, lines 10-18); and  
modulating a quadrature signal of the upconverted complex signal in accordance with the imaginary pan of the complex signal combined with the real part of the phase shifted complex signal (col. 5, lines 14-23).

As per claim 5, Stevenson discloses bandlimiting step is performed after the up conversion step (col. 4, lines 5-15)

As per claim 6, Stevenson discloses modulation is performed after the upconversion step (col. 8, lines 46-61).

Regarding claim 7, the steps claimed as apparatus is nothing more restating the function of the specific components of the method as claimed above and therefore, it would have been obvious, considering the aforementioned rejection for the methods claim 1.

With reference to claim 8, Stevenson discloses the band-limiting filter is a low pass filter (fig. 1, elements 20,22) connected to receive the output of the complex spreading signal generator (col. 5, lines 19-28).

Regarding claim 9, Stevenson discloses the band-limiting filter is a band-pass filter (fig. 6, elements 98, 100) connected to receive the output of the complex modulator (col. 8, lines 12-16).

Regarding claim 10, Stevenson discloses the data modulator is coupled to receive a second signal (pilot ref.) via the complex modulator (fig. 1; col. 4, lines 55-67; col. 5, lines 10-18).

As per claim 11, Stevenson discloses a method of decoding single sideband signal comprising: upconverting the complex spreading signal to a higher frequency (col. 6, lines 2-34); and  
demodulating a received signal in accordance with the upconverted complex spreading signal (col. 6, lines 59-67).

*Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson (US Patent 4,726,069).

Regarding claim 4, Stevenson discloses all limitations of claim 1. Stevenson however, is silent regarding bandlimiting step is performed prior to the phase shifting step. The bandlimiting step, as best understood, can be carried out by placing filters (lowpass, bandpass, highpass, etc.), at appropriate locations within a circuit, as long as it does not affect the outcome of desired results making it an obvious choice by design.

*Allowable Subject Matter*

9. Claim 3 would be allowable if the equation, as best understood by the examiner, is the same as recited in claim 12 and if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
10. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

Raleigh (USP 6,377,631) discloses a transmitter incorporating the spatio-temporal processing of signals.

Davies et al (USP 5,999,300) shows bandwidth reduction method and apparatus that offset the dispersion effects.

Kumar (USP 6,005,894) shows a method and system for transmission and reception of composite RF signals.

Baghdady (USP 5,434,577) discloses signal modulation and methods of operation.

Wright et al (USP 6,798,843) shows wideband digital predistortion compensation using adaptive processing.

Jou (USP 6,389,000) shows method and apparatus for transmitting and receiving high-speed data in a communication system.

Dent (USP 5,631,898) discloses cellular/satellite communications system with improved frequency reuse.

Miyashita (USP 6,288,610) shows an apparatus for correcting signals on the basis of estimating results.

Dafesh (USP 6,430,213) discloses a coherent adaptive subcarrier modulation method and quadrature subcarrier modulation.



Art Unit: 2637

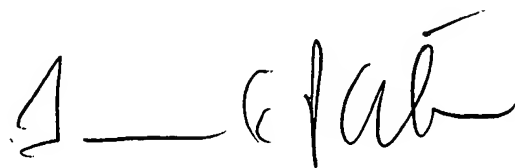
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
QG.

March 28, 2005.



**JAY K. PATEL  
SUPERVISORY PATENT EXAMINER**